

JOURNAL OF THE LEPIDOPTERISTS' SOCIETY

Volume 52

1998

Number 1

Journal of the Lepidopterists' Society
52(1), 1998, 1-8

PRESIDENTIAL ADDRESS 1997: A NEW SPECIES OF *LITHOPHANE* (NOCTUIDAE), FROM THE MIDWESTERN UNITED STATES, DEDICATED TO THE PURPOSE OF THE LEPIDOPTERISTS' SOCIETY

ERIC H. METZLER

1241 Kildale Square North, Columbus, Ohio 43229, USA

ABSTRACT. *Lithophane franclemonti*, new species, is described and illustrated from Killdeer Plains Wildlife Area, Wyandot County, Ohio. The new species is most similar to *L. innominata* (Smith) and *L. bethunei* (Grote & Robinson). The holotype and male and female genitalia are illustrated. The description is written in deference to the principle of collaboration between amateur and professional lepidopterists.

Additional key words: Ohio, Wisconsin, Illinois, Pennsylvania, Killdeer Plains Wildlife Area.

This presidential address coincides with the 50th anniversary of The Lepidopterists' Society. At this quintessential occasion, it seems appropriate to highlight the celebration, and thus I take the liberty of straying from the traditional erudite wisdom of former Presidents by dedicating this paper to the purpose of the Society, as eloquently penned by Cyril Franklin dos Passos (Kendall 1977), to wit:

"It shall be the purpose of the Society to promote internationally the science of lepidopterology in all its branches; to further the scientifically sound and progressive study of Lepidoptera; to publish periodicals and other publications on Lepidoptera; to facilitate the exchange of specimens and ideas by both the professional worker and the amateur in the field; to compile and distribute information to other organizations and individuals for purposes of education and conservation and appreciation of Lepidoptera; and to secure cooperation in all measures tending to that end."

The foresight and strength of this passage, now 50 years old, is supported by the success of the Society, and its impact on the thousands of professional and amateur enthusiasts who exemplify its meaning. This paper is written to honor all the Society's members. I speak for myself and many others when I express my heartfelt thanks for the support and invaluable assistance we have received from the people who comprise the Society. One source of encouragement, especially important to me, is expressed in the line: "to facilitate the exchange of ideas by both the

professional worker and the amateur." My activities as an amateur have been greatly enhanced by assistance from many professionals.

My research activities include documenting Lepidoptera in some of Ohio's finest natural areas (Rings et al. 1987, Rings & Metzler 1988, Metzler 1989, Metzler & Shuey 1989, Rings & Metzler 1989, Rings & Metzler 1990, Rings et al. 1991[92], Rings & Metzler 1992, Metzler & Zebold 1995), including Killdeer Plains Wildlife Area near Marion, Ohio. My field work is not restricted to summer months—unpredictable warm nights during the winter tend to induce long drives (Newman 1945) to sample "winter moths," including several species in the genus *Lithophane*. A new species of *Lithophane*, discovered on one of those outings, is described here, and its dedication is meant to honor all members adhering to the purpose of The Lepidopterists' Society.

MATERIALS AND METHODS

Specimens of the new *Lithophane* were collected in the evening crepuscular hours after attraction to baits consisting of homemade banana wine, black strap molasses, and brown sugar. Small sponges were soaked in the bait mixture and hung from tree branches or bushes. The illustrated genitalia were dissected in distilled water, stained with Safranin O in water, dehydrated in 98% isopropyl alcohol, cleared in xylene, and slide mounted in Canada balsam. To prepare the genitalia, I soaked abdomens of the moths in KOH (Clarke 1941, Hardwick 1950). I photographed the genitalia with the aid of a Leitz Aristophot photomacrographic apparatus using transmitted light. The photograph of the adult was illuminated with an Aristo DA-10 light box, background being an 18% gray card. The forewing lengths were estimated to the nearest mm, using a mm rule, and the measurements are from the base of the forewing to the tip of the apex. The colors are from Ridgway (1912) and Smithe (1974, 1975, 1981). Terminology for the morphology, elements of wing pattern, and genitalic structures follow Forbes (1954), Klots (1970), Hodges (1971), and Lafontaine (1987). The subfamily assignment follows Poole (1995) and Poole and Gentili (1996).

Lithophane franclemonti Metzler, new species

Diagnosis. *Lithophane franclemonti* is most similar to *L. bethunei* (Grote & Robinson 1868) and *L. innominata* (Smith 1893), and closely matches the generic characters provided by Franclemont and Forbes (1954). Compared to the other species, *L. franclemonti* looks yellow. It can be distinguished from *L. bethunei* by its color and larger size. The ground color of *L. bethunei* is pearl gray. The mean forewing length of *L. franclemonti* is 17.5 mm ($n = 18$) and *L. bethunei* is 15.9 mm ($n = 12$). The pale color of both forewings and hindwings, and the shape of the juxta, separate *L. franclemonti* and *L. innominata*. The forewing of *L. innominata* is more orange. The hindwing of *L. franclemonti* is a mixture of flesh and fuscous colored scales which makes the hindwing look pale and pinkish in comparison to the fuscous colored hindwings of *L. innominata*. The juxta of *L.*



FIG. 1. *Lithophane franclemonti* n. sp., holotype male. USA: OHIO, Wyandot County, Pitt Township, Killdeer Plains Wildlife Area, 40°42.5'N, 83°13.8'W, 27 March 1997, Eric H. Metzler.

franclemonti has two strongly delineated lateral ridges, the distal end of the juxta is spoon shaped and blunt. The juxta is narrow, without lateral ridges, and tapers to a point in *L. inominata*.

Description. *Adult male* (Fig. 1): *Head*: pale pinkish buff, tawny line across front between eyes, patch of tawny scales dorsad of clypeus on each side of head next to eyes, anterior lashes tawny, posterior lashes black; labial palpus concolorous; dorsal, distal, and ventral surfaces of second segment with some tawny- and black-tipped scales; antennae filiform, dorsal scaling concolorous with head, ventral surface naked; sensory setae on ventral surface of male antennae dense in comparison to that of female, setae no longer than width of flagellar segment. *Thorax*: concolorous with head, collar and tegulae partly outlined with black-tipped scales; ventral thorax with hair-like scales, mixed with tawny-tipped scales; legs concolorous with head, with scattered black-tipped scales; tibia lateral distal end with patch of black-tipped scales; tibial spurs encircled with black scales at middle, tip of each spur black; tarsus concolorous with head, basal dorsum of each tarsomere with patch of tawny-, fuscous-, and black-tipped scales. *Forewing*: length 16–18 mm, mean 17.5 ± 0.6 mm, $n = 18$; ground color pale pinkish buff, markings delineated with tawny-, fuscous-, and black-tipped scales; basal dash, obscure antemedial line, median shade, narrow filling of reniform, filling between median line and postmedial line, inner half of subterminal line, and terminal line defined by tawny-tipped scales; black-tipped scales at intersection of dentate antemedial and postmedial lines and veins, at basal, antemedial, and median lines at costa, and along veins in subterminal area; adterminal line, and costa near reniform with black-tipped scales; median shade between antemedial and postmedial lines, and subterminal inter-vein spaces below apex and above tornus filled with fuscous-tipped scales; orbicular obscure, outline of reniform defined by absence of tawny-tipped scales; underside pale horn color with tawny-tipped scales delineating some veins and terminal line; postmedial line obscure, pale pinkish buff. *Hindwing*: ground

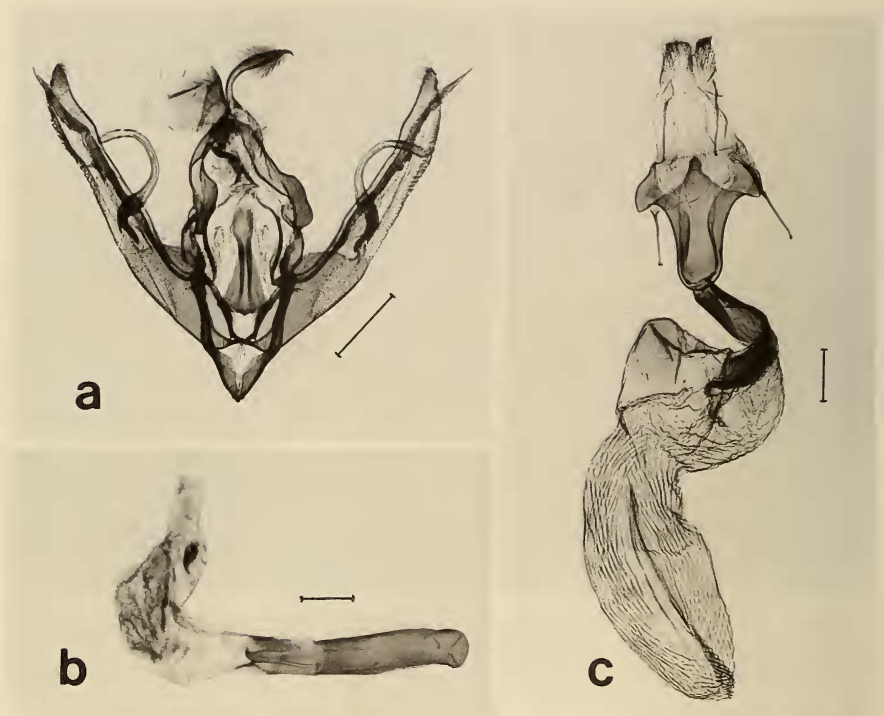


FIG. 2. Genitalia of *Lithophane franclemonti* n. sp. **a**, male genitalia (aedeagus removed) and **b**, aedeagus; slide EHM 218, paratype, USA: OHIO, Wyandot County, Pitt Township, Killdeer Plains Wildlife Area, 40°42.5'N, 83°13.8'W, 16 March 1995, Eric H. Metzler. **c**, female genitalia; slide EHM 219, paratype, USA: OHIO, Wyandot County, Pitt Township, Killdeer Plains Wildlife Area, 40°42.5'N, 83°13.8'W, 16 March 1995, Eric H. Metzler. Scale bars = 1 mm.

color flesh color, fuscous-tipped scales along veins and terminal line, paler fuscous-tipped scales in some spaces between veins; outer half of fringe contrastingly pale; underside as in forewing. *Abdomen*: first tergite closely sealed, buff; terga 2–8 heavily dusted with fuscous- and black-tipped scales; tufts absent; sterna dusted with tawny- and black-tipped scales. *Adult female*: similar to male. *Male genitalia* (Fig. 2): vinculum, tegumen, penicillus, uncus, and saccus as for genus; sacculus of valve broad with costal lobe, ventral margin between sacculus and terminal spine dentate, eucullus and corona reduced; digitus heavy, serrate at middle, extending from base of sacculus to a terminal spine; clasper sinuate; juxta elongate, broadest at the anterior end, gradually narrowing, posterior 1/3 spoon shaped, anterior 2/3 with strongly sclerotized parallel lateral ridges; aedeagus with broad terminal ventral tooth angled at tip; vesica with 90° angle to right, distal half lightly sclerotized, apical diverticulum with dense patch of cornuti. *Female genitalia* (Fig. 2): ovipositor lobes lightly sclerotized, anterior apophysis and posterior apophysis slender, sterigma elongate, broadly pointed ventrally; ductus bursae flattened, anterior ventral side heavily sclerotized, twisted 180° and bent 90° so that posterior sclerotized side is dorsal at junction with ostium bursae; corpus bursae broad and elongate, slightly narrowed at 2/3 length from anterior end, posterior end lightly sclerotized; 4 elongate signa, 2 lateral, 1 ventral, and 1 dorsal.



FIG. 3. Distribution of *Lithophane franclemonti* n. sp.

Types. *Holotype*: Male. USA: OHIO, Wyandot Co., Pitt Township, Killdeer Plains WLA, 40°42.5'N, 83°13.8'W, 27 March 1997, Eric H. Metzler, bait. *Paratypes*: 26 ♂ and 26 ♀ as follows. USA: Illinois: [Cook County] Evanston, 4/5/[18]97, ♀, coll. A. J. Snyder; [Jo Daviess County] Elizabeth, Sept. 12 1937, ♂, M.L. Bristol, Coll.; [Jo Daviess County] Apple River Canyon, Oct 5 1940, ♂, M.L. Bristol, Coll. Ohio: Wyandot County, Pitt Township, Killdeer Plains WLA, 40°42.5'N, 83°13.8'W, 16 March 1995, 2 ♂, 2 ♀, 27 March 1997, 7 ♂, 4 ♀, Eric H. Metzler. Pennsylvania: [Allegheny County] Pitts[burgh], Oct. 8 [19]04, 1

♂, Oct. 25 [19]04, ♀, [Beaver County] New Brighton, 10-10-[19]02, ♂, 10-3-[19]03 ♂, and IX-24-[19]05, ♀, H. D. Merrick. Wisconsin: Crawford County, T10N, R6W, Sec. 6, 6 May 1995, ♂, L. A. Ferge; [Dane Co.] Cross Plains, T8N, R7E, S33, 3/27/[19]97, 7 ♂, 13 ♀, 4/10/[19]96, ♀, T. Rocheleau coll.; Dane County, T7N, R7E, Sec. 16, 7 April 1981, ♀, 22 April 1979, ♂, ♀, 26 April 1978, ♂, and 5 May 1979, ♂, L. A. Ferge; Iowa County, T6N, R5E, Sec. 1, 22 March 1988, ♂, ♀, L. A. Ferge. The holotype male is in the United States National Museum of Natural History, Washington, D.C. Paratypes are deposited in the following collections: John G. Franclemont at Cornell University, Ithaca, New York; Field Museum of Natural History, Chicago, Illinois; Illinois Natural History Survey, Champaign, Illinois; Eric H. Metzler, Columbus, Ohio; The Ohio Lepidopterists, Ohio State University Museum of Biological Diversity, Columbus, Ohio; Thomas A. Rocheleau, Madison, Wisconsin; Leslie A. Ferge, Middleton, Wisconsin; Milwaukee Public Museum, Milwaukee, Wisconsin; Natural History Museum of Los Angeles County, Los Angeles, California; Michigan State University, East Lansing, Michigan; Ohio State University Museum of Biological Diversity, Columbus, Ohio; Canadian National Collection, Ottawa, Ontario; American Museum of Natural History, New York, New York; The Natural History Museum, London, England; Florida State Collection of Arthropods, Gainesville, Florida; and Carnegie Museum of Natural History, Pittsburgh, Pennsylvania.

Biological Notes. *Lithophane franclemonti* has been recorded from western Pennsylvania (Allegheny and Beaver counties), central Ohio, northeastern Illinois, and southern Wisconsin (Fig. 3). The Ohio specimens were collected at the edge of, and in an old field adjacent to a second growth mixed mesophytic forest of oaks, hickories, wild black cherry, beech, various maples, and other hardwoods typical of central Ohio. The topography of Killdeer Plains Wildlife Area is flat. It is known for its remnant prairies and wetlands. However, I cannot link *L. franclemonti* to either of those habitats. Leslie Ferge describes the Wisconsin habitat as: "oak/hickory forest, the predominant habitat type of [his] three localities. However, the Crawford County specimen was collected on a dry hill prairie remnant surrounded by extensive forest." Thomas Rocheleau collected his Wisconsin specimens along a road at the top of a hill surrounded with mature (second growth) oak/hickory woods. Most of the specimens were collected at bait. The specimens collected in autumn are inseparable from specimens collected in spring. The immature stages are as yet unknown.

Etymology. As a young man, fully wet behind the ears, and bolstered by encouragement from my mentors at Michigan State University, I nervously called upon John G. Franclemont with a few boxes of Noctuidae and asked for his assistance. He immediately treated me as a colleague by demonstrating techniques, sharing knowledge and showing me the finest literature. The next several hours, and an invitation to go collecting, led to a friendship that has lasted many years. John Franclemont exemplifies what Alexander Barrett Klots later told me: "lepidopterists are the friendliest people in the world." In recognition of all the lepidopterists, who gladly give their time to help me and others more fully enjoy our common interest, I name this species after John Franclemont; *franclemonti* is the possessive genitive case. The genus *Lithophane* is one of his favorite groups of moths.

ACKNOWLEDGMENTS

Patricia A. Metzler, my wife and constant companion, faithfully carried collecting equipment, lent support, and provided excellent company while she contemplated the apparent pleasures of being married to a man who plays golf every weekend. John G. Franclemont provided me with abundant hours of learning and fellowship. Many other entomologists, several of whom are Franclemont's students, provided time, energy, knowledge, food, spirits, and patience while I attempted to absorb as much knowledge as possible. I cannot name them all for fear of omitting a few, yet it is clear to me that they epitomize the professional/amateur interaction extolled in the constitution of The Lepidopterists' Society. Dale Schweitzer and John Franclemont both inspected specimens of *L. franclemonti* and concur that it is a new species. For lending specimens I thank: Leslie A. Ferge; Kathleen R. Zeiders, Illinois Natural History Survey; Philip Parrillo, Field Museum of Natural History; Susan Borkin, Milwaukee Public Museum; John A. Rawlins, Carnegie Museum

of Natural History; Ronald W. Hodges, U.S. National Museum of Natural History; Mark F. O'Brien, University of Michigan; and Thomas A. Rocheleau. Charles V. Covell, Jr., J. Donald Lafontaine, Ron Leuschner, Mogens C. Nielsen, Eric L. Quinter, Roy W. Rings, and Sonja Teraguchi searched for specimens in collections under their care. This research was funded by the Ohio Division of Wildlife with funds donated to the Ohio Wildlife Diversity & Endangered Species Program, and a grant from the Partnerships for Wildlife Program, U. S. Fish & Wildlife Service, to the Wisconsin Department of Natural Resources. The project was administered by The Ohio Biological Survey. Brian J. Armitage, Steve Barry, Donna Daniel, Carolyn Caldwell, Douglas C. Ferguson, Richard A. Henderson, William Luckey, Steven Passoa, John A. Shuey, Charles A. Triplehorn, and John W. Wenzel provided professional courtesies. Michael G. Pogue, John W. Brown, M. Deane Bowers and Lawrence F. Gall made excellent suggestions that helped improve the manuscript.

LITERATURE CITED

- CLARKE, J. F. G. 1941. The preparation of slides of the genitalia of Lepidoptera. *Bull. Brooklyn Entomol. Soc.* 36:149-161.
- FORBES, W. T. M. 1954. Lepidoptera of New York and neighboring states, part III. *Cornell Univ. Agric. Expt. Sta. Mem.* 329. 433 pp.
- FRANCLEMONT, J. G. & W. T. M. FORBES. 1954. Cuculliinae, pp. 116-164. *In* Lepidoptera of New York and neighboring states, part III. *Cornell Univ. Agric. Expt. Sta. Mem.* 329.
- GROTE, A. R. 1874. On the Noctuidae of North America, pp. 21-38. *In* Sixth Ann. Rept. Trustees Peabody Acad. Science for the year 1873. Salem, Salem Press.
- GROTE, A. R. & C. T. ROBINSON. 1868. Descriptions of American Lepidoptera, no. 3. *Trans. Am. Entomol. Soc.* 1:323-360.
- HARDWICK, D. F. 1950. Preparation of slide mounts of lepidopterous genitalia. *Can. Entomol.* 82:231-235.
- HODGES, R. W. 1971. The moths of America north of Mexico, fasc. 21, Sphingoidea. E. W. Classey Ltd. & R. B. D. Publications Inc., London. 158 pp.
- KENDALL, R. O. (compiler). 1977. The Lepidopterists' Society commemorative volume 1945-1973. The Lepidopterists' Society. 374 pp.
- KLOTS, A. B. 1970. Lepidoptera, pp. 115-130. *In* S. L. Tuxen (ed.), Taxonomist's glossary of genitalia in insects. Munksgaard, Copenhagen, Denmark. 359 pp.
- LAFONTAINE, J. D. 1987. The Moths of America north of Mexico, fasc. 27.2, Noctuoidea: Noctuidae (part): Noctuinae (part - *Euxoa*). The Wedge Entomol. Research Foundation, Washington, D.C. 237 pp.
- METZLER, E. H. 1989. The Lepidoptera of Cedar Bog II. A checklist of moths (in part) of Cedar Bog, pp. 29-32. *In* R.C. Glotzhober, A. Kochman, & W.T. Schultz (eds.), Cedar Bog Symposium II, 14 November 1987. Ohio Historical Society. Columbus, Ohio.
- METZLER, E. H. & J. A. SHUEY. 1989. Unusual butterflies and moths of the Oak Openings, Lucas County, Ohio. *J. Stranahan Arboretum, Spring* 1989:7-10.
- METZLER, E. H. & R. A. ZEBOLD. 1995. Twenty-eight species of moths new to Ohio from Huffman Prairie, Greene County (Lepidoptera). *Ohio J. Sci.* 95:240-242.
- NEWMAN, J. H. 1945. Midwinter collecting of Lepidoptera in Michigan. *Entomol. News* 56:7-9.
- POOLE, R. W. 1995. The moths of America North of Mexico including Greenland, fasc. 26.1, Noctuoidea: Noctuidae (Part): Cuculliinae, Stririinae, Psaphidinae (Part). The Wedge Entomol. Research Foundation. Washington, D.C. 249 pp.
- POOLE, R. W. & P. GENTILI (eds). 1996. *Nomina Insecta Nearctica*. A check list of the insects of North America, Volume 3: Diptera, Lepidoptera, Siphonaptera. Entomol. Information Services. Rockville, Maryland. 1143 pp.
- RIDGWAY, R. 1912. Color standards and color nomenclature. Published privately by the author. Washington, D.C. 43 pp., 53 color plates.
- RINGS, R. W. & E. H. METZLER. 1988. Preliminary annotated checklist of the Lepidoptera of Atwood Lake Park, Ohio. *Ohio J. Sci.* 88:159-168.

- . 1989. A preliminary checklist of the Lepidoptera of Mohican State Forest and Mohican State Park, Ashland County, Ohio. *Ohio J. Sci.* 89:78–88.
- . 1990. The Lepidoptera of Fowler Woods State Nature Preserve, Richland County, Ohio. *Great Lakes Entomol.* 23:43–56.
- . 1992. A check list of the Lepidoptera of Beaver Creek State Park, Columbiana County, Ohio. *Great Lakes Entomol.* 25:115–131.
- RINGS, R. W., E. H. METZLER & D. K. PARSHALL. 1991[92]. A check list of the Lepidoptera of Fulton County, Ohio with special reference to the moths of Goll Woods State Nature Preserve. *Great Lakes Entomol.* 24:265–280.
- RINGS, R. W., R. M. RITTER, R. W. HAWES & E. H. METZLER. 1987. A nine-year study of the Lepidoptera of the Wilderness Center, Stark County, Ohio. *Ohio J. Sci.* 87:55–61.
- SMITH, J. B. 1893. Catalogue of the lepidopterous superfamily Noctuidae found in boreal America. *Bull. U.S. Natl. Mus.* 44. 424 pp.
- SMITHE, F. B. 1974. Naturalist's color guide supplement. The American Museum of Natural History, New York, New York. 229 pp.
- . 1975. Naturalist's color guide. The American Museum of Natural History, New York, New York. 16 color plates.
- . 1981. Naturalist's color guide part III. The American Museum of Natural History, New York, New York. 37 pp., 18 color plates.

Received for publication 10 March 1997; revised and accepted 7 April 1997.